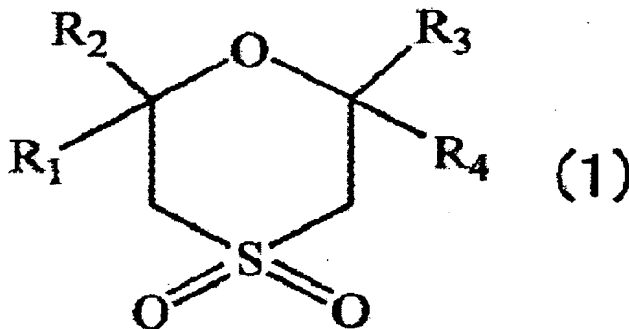


NON-AQUEOUS ELECTROLYTIC SOLUTION AND LITHIUM SECONDARY BATTERY USING IT**Publication number:** JP2004265848**Publication date:** 2004-09-24**Inventor:** ONUKI MASAMICHI**Applicant:** MITSUBISHI CHEM CORP**Classification:****- international:** H01M10/40; H01M10/36; (IPC1-7): H01M10/40**- european:****Application number:** JP20030114393 20030418**Priority number(s):** JP20030114393 20030418; JP20030003268 20030109[Report a data error here](#)**Abstract of JP2004265848**

PROBLEM TO BE SOLVED: To provide a lithium secondary battery superior in a high temperature shelf life and trickle charging characteristic, and a nonaqueous electrolytic solution used in it.

SOLUTION: This solution consists primarily of lithium salt and a nonaqueous organic solvent to solve it, and furthermore, 0.01 to 10 wt% of 1,4 thioxane derivative expressed by a general formula (1), and 0.01 to 10 wt% of unsaturated carbonate are contained in the electrolytic solution. Here in the formula, R¹ to R⁴ respectively express hydrogen atoms or hydrocarbon groups of carbon numbers 1 to 8 independently. Furthermore, R¹ and R², as well as R³ and R⁴ respectively may be bonded and form a ring mutually, and R² and R³ may be also bonded mutually.

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